



MEMORANDUM

TO: State Board of Education

FROM: Stacey Hughes, Ph.D., Assistant Superintendent for Student Learning;
Zach Foughty, Secondary Math Specialist

DATE: February 23, 2011

SUBJECT: High School Mathematics Update

In November, we discussed potential changes that need to be made at the high school level in mathematics. This discussion will serve as a continuation of high school curriculum changes, as well as an update on the progress we've made in restructuring Pre-Algebra. We wish to receive input on these items, in order to bring formal recommendations to the board in April.

Math Experience Requirement

In November, we discussed the possibility of increasing the requirements of the Core 40 Diploma to include a "math experience" requirement. This requirement is built out of the notion that students need access to rigorous courses that build mathematical proficiency in each year of their high school career. However, courses outside of the pure "mathematics" discipline build similar proficiencies as 4th-year math courses, and the interests of many students may better align with these other rigorous courses than they do with the current offering of 4th-year mathematics courses.

- For the Core 40 Diploma, the expectation should remain that students earn 6 credits in mathematics upon graduation. However, students who complete the Algebra II (or its equivalent) before their senior year would need to enroll in additional math or math experience courses each year until graduation.
- For the General Diploma, the expectation should remain that students earn 4 credits in mathematics upon graduation. However, students would need to earn an additional 2 credits in either math or math experience courses after completing Algebra I.
- We will need to work collaboratively with the Commission for Higher Education and our counselors' network to make college admissions requirements explicit. Although math experience courses may count towards the Core 40, students wanting to go to certain 4-year institutions (i.e., Purdue-West Lafayette and IU-Bloomington) should enroll in true 4th-year mathematics courses.
- Although we have not compiled a list of math experience courses yet, we've identified a list of courses that would likely meet this expectation and others that could meet this expectation with certain changes. The courses come from a variety of disciplines, including Mathematics, Science, Economics, Project Lead the Way, Computer Science, Engineering and Technology Education, and Trade and Industrial Education.

Pre-Algebra

The expectation for all students should be completion of Algebra I (or its equivalent) by the end of the freshman year. If this new expectation is set, Math Lab and Pre-Algebra would serve the same purpose: to provide students a course during which they can receive additional support for Algebra I or other Core 40 mathematics courses. As such, we recommend the two courses be combined together into a new course: **Algebra I Enrichment**. To support schools using the integrated sequence, it may be beneficial to develop **Integrated I Enrichment** as well.

In order that Algebra I Enrichment is not simply Pre-Algebra with a new name, we would recommend the following structural requirements for the course. For each point below, “Algebra I” refers to the first course in the high school math sequence, whether that be Algebra I or Integrated I.

- Algebra I Enrichment must be given during the same academic year as Algebra I. This allows schools flexibility in scheduling, with the end goal being that schools develop systems that allow for all students to be on track to complete Algebra I by the end of the freshman year. Some models may include concurrent enrollment in both courses; double block of Algebra I Enrichment in Semester I and Algebra I in Semester II; or other models.
- Standards should be developed for Algebra I Enrichment, to ensure a tight alignment between the Algebra I course and its enrichment course.
- For Core 40 students, Algebra I Enrichment would count as an elective credit.
- For General Diploma students, Algebra I Enrichment would count as a mathematics credit. However, to ensure that these students continue building mathematical proficiency throughout their high school careers, we recommend that this course only count as a mathematics credit if accompanied by a “math experience” requirement for the General Diploma, as described earlier.